In the Claims:

Please amend the claims as follows:

1. (currently amended) Method for determining the position, in a formation (1) containing at least one electrolytic liquid, of an interface (6) in relation to a bore hole (2), ~~characterised in that it comprises~~ comprising the following steps:

  a°) stimulating, from the bore hole (2) at a first depth, the interface (6), at a first instant (t1), with a first excitation signal (20) corresponding to a first type of energy in such a way that said first excitation signal (20) is converted at the level of the interface (6) into a first response signal (23) corresponding to a second type of energy, one of the energies being a mechanical type of energy and the other an electromagnetic type of energy,

  b°) detecting the first response signal (23) at a second instant (t2) by means of a first detection device (9) placed in the bore hole (2) and, if the first response signal (23) is greater than or equal to a first threshold, calculating the distance (d1) between the interface (6) and the first detection device (9) from the time separating the first instant (t1) and the second instant (t2) and knowing the propagation velocity (Vp) of sound in the formation (1),

  c°) at least in the case where the first response signal (23) is less than the first detection threshold, detecting the first excitation signal (20) after a reflection against the interface (6) at a third instant (t3) by means of a second detection device (10) placed in the bore hole (2) and, if necessary, calculating the distance (d2) between the interface (6) and the second detection device (10) from the time separating the first instant (t1) and the third instant (t3) and knowing the propagation velocity (V), in the formation (1), of the first excitation signal (20).

2. (currently amended) Positioning method according to claim 1, ~~characterised in that it comprises~~ comprising the following steps:

  d°) stimulating, at substantially the first depth, the interface (6), at a fourth instant (t4), with a second excitation signal (30) corresponding to the second type of energy in such a way that said second excitation signal (30) is converted at the level of the interface (6) into a second response signal (33) corresponding to the first type of energy,

  e°) detecting the second response signal (33), at a fifth instant (t5), by means of a third detection device (16) placed in the bore hole (2) and, if the second response signal (33) is greater than or equal to a second threshold, calculating the distance (d3) between the interface (6) and the third detection device (16) from the time separating the fourth instant (t4) and the fifth instant (t5) and knowing the propagation velocity (Vp) of sound in the formation (1),

f°) at least in the case where the second response signal (32) is less than the second threshold, detecting, at a sixth instant (t6), the second excitation signal (32) after a reflection against the interface (6) by means of a fourth detection device (17) placed in the bore hole (2) and, if necessary, calculating the distance (d4) between the interface (6) and the fourth detection device (17) from the time separating the fourth instant (t4) and the sixth instant (t6) and knowing the propagation velocity (V), in the formation (1), of the second excitation signal (30).

3. (currently amended)Method according to ~~either of~~ claims 1 ~~or 2, characterised in that~~ wherein it consists in repeating steps a, b and, if appropriate, step c at at least one other depth in the bore hole (2) in order to obtain a profile of the interface (6).

4. (currently amended)Method according to ~~any of~~ claims 1 ~~to 3, characterised in that~~ wherein it consists in repeating steps d and e and, if appropriate, step f at at least one other depth in the bore hole (2) in order to obtain a profile of the interface (6).

5. (currently amended)Method according to ~~either of~~ claims 1 ~~or 2, characterised in that~~ wherein it consists in repeating steps a, b and, if appropriate, step c continuously along the length of the bore hole (2) in such a way as to obtain a continuous profile of the interface (6).

6. (currently amended)Method according to ~~either of~~ claims 1 ~~or 2, characterised in that~~ wherein it consists in repeating steps d and e and, if appropriate, step f continuously along the length of the bore hole (2) in such a way as to obtain a continuous profile of the interface (6).

7. (currently amended)Method according to ~~any of~~ claims 1 ~~to 6~~, in which the interface (6) has a resonance frequency, ~~characterised in that~~ wherein the first excitation signal (20) and / or the second excitation signal (30) has a frequency that is substantially the resonance frequency of the interface (6).

8. (currently amended)Method according to ~~any of~~ claims 1 ~~to 7, characterised in that~~ wherein the interface (6) corresponds to the frontier of a zone of the formation invaded by a bore fluid injected into the bore hole (2).

9. (currently amended)Method according to ~~any of~~ claims 1 ~~to 7, characterised in that~~ wherein the interface (6) is positioned between two fluids of which at least one is electrolytic, or two different rocky mediums of the formation (1), at the level of a fracture in the formation (1).

10. (currently amended)Device for determining the position, in a formation (1) containing at least one electrolytic liquid, of an interface (6) in relation to a bore hole (2), ~~characterised in that~~ wherein it comprises:

- a first excitation device (8) for stimulating, at a first instant (t1), the interface (6) with a first excitation signal (20) corresponding to a first type of energy in such a way that said first excitation signal (20) is converted at the level of the interface (6) into a first response signal (23) corresponding to a second type of energy, one of the energies being a mechanical type of energy and the other an electromagnetic type of energy,

- a first detection device (9) for detecting the first response signal (23) at a second instant (t2),

- first means of calculation (13) for calculating the distance (d1) between the interface (6) and the first detection device (9) from the time separating the first instant (t1) and the second instant (t2) and knowing the propagation velocity (Vp) of sound in the formation (1),

- if appropriate, firstly, a second detection device (10) for detecting at a third instant (t3) the first excitation signal (20) after a reflection against the interface (6), and, secondly, second means of calculation (14) for calculating the distance (d2) between the interface (6) and the second detection device (10) from the time separating the first instant (t1) and the third instant (t3) and knowing the propagation velocity (V), in the formation (1), of the first excitation signal (20).

11. (currently amended)Device according to claim 10 ~~characterised in that it comprises~~ comprising:

- a second excitation device (15) for stimulating, at a fourth instant (t4), the interface (6) with a second excitation signal (30) corresponding to the second type of energy in such a way that said first excitation signal (30) is converted at the level of the interface (6) into a second signal,

- a third detection device (16) for detecting the second response signal (33) at a fifth instant (t5),

- third means of calculation (18) for calculating the distance (d3) between the interface (6) and the third detection device (16) from the time separating the fourth instant (t4) and the fifth instant (t5) and knowing the propagation velocity (Vp) of sound in the formation (1),

- if appropriate, firstly, a fourth detection device (17) for detecting, at a sixth instant (t6), the second excitation signal (30) after a reflection against the interface (6) and, secondly, fourth means of calculation (19) for calculating the distance (d4) between the interface (6) and the fourth detection device (17) from the time separating the fourth instant (t4) and the sixth instant (t6) and knowing the propagation velocity (V), in the formation (1), of the second excitation signal (30).

12. (currently amended)Device according to ~~either of~~ claims 10 ~~or 11, characterised in that~~ wherein the first excitation device (10) is formed by an element of a first group comprising a pressure generator, an acoustic transducer or a second group comprising at least one pair of electrodes, at least one

coil, the second excitation device being formed by an element of the second group or the first group respectively.

13. (currently amended)Device according to ~~any of~~ claims 10 ~~to 12, characterised in that~~ wherein the first detection device (9) is formed by an element of a group comprising at least one pair of electrodes, at least one coil or at least one acoustic sensor and in that the second detection device (10) is formed by the acoustic sensor or by an element of the group respectively.

14. (currently amended)Device according to ~~any of~~ claims 10 ~~to 13, characterised in that~~ wherein the third detection device (16) is formed by an element of a group comprising at least one pair of electrodes, at least one coil or at least one acoustic sensor and in that the fourth detection device (17) is formed by the acoustic sensor or by an element of the group respectively.

15. (currently amended)Device according to ~~any of~~ claims 10 ~~to 14, characterised in that~~ wherein the first excitation device (8) is merged with the second detection device (10).

16. (currently amended)Device according to ~~any of~~ claims 11 ~~to 15, characterised in that~~ wherein the second excitation device (15) is merged with the fourth detection device (17).

17. (currently amended)Device according to ~~any of~~ claims 11 ~~to 16, characterised in that~~ wherein the first detection device (9) is merged with the fourth detection device (19).

18. (currently amended)Device according to ~~any of~~ claims 11 ~~to 17, characterised in that~~ wherein the second detection device (10) is merged with the third detection device (16).

19. (currently amended)Device according to ~~any of~~ claims 11 ~~to 18, characterised in that~~ wherein the first, second, third and fourth means of calculation are grouped together within a single calculator (C).

20. (currently amended)Device according to ~~any of~~ claims 11 ~~to 19, characterised in that~~ wherein the interface (6) having a resonance frequency, the first excitation signal (20) and / or the second excitation signal (30) has a frequency that is substantially the resonance frequency of the interface (6).

21. (currently amended)Device according to ~~any of~~ claims 10 ~~to 20, characterised in that~~ wherein the first excitation device (8), the first detection device (9) and the second detection device (10) are borne on a same support (12).

22. (currently amended)Device according to ~~any of~~ claims 11 ~~to 21, characterised in that~~ wherein the second excitation device (15), the third detection device (16) and the fourth detection device (17) are borne on a same support (12).

23. (currently amended)Device according to ~~either of~~ claims 21 ~~or 22, characterised in that~~ wherein the supports are merged.

24. (new)Method according to claim 2, consisting in repeating steps a, b and, if appropriate, step c at at least one other depth in the bore hole (2) in order to obtain a profile of the interface (6).

25. (new)Method according to claim 24, consisting in repeating steps d and e and, if appropriate, step f at at least one other depth in the bore hole (2) in order to obtain a profile of the interface (6).

26. (new)Method according to claim 2, consisting in repeating steps a, b and, if appropriate, step c continuously along the length of the bore hole (2) in such a way as to obtain a continuous profile of the interface (6).

27. (new)Method according to claim 2, consisting in repeating steps d and e and, if appropriate, step f continuously along the length of the bore hole (2) in such a way as to obtain a continuous profile of the interface (6).